ABSTRACT

Infrared observations of Comet 81P/Wild 2 in 1997

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Comet 81P/Wild 2 was observed in the thermal infrared over 6 months during its 1997 perihelion passage. The comet was most active in late February, about 3 months pre-perihelion; dust production declined by a factor of 3 between February and August. For the GIOTTO Halley dust size distribution, maximum dust production rate was $\sim 2 \times 10^3$ kg/s. The comet displayed a 10 micron silicate feature about 25% above the continuum, similar to several other short-period comets, but much lower than that seen in a number of Oort Cloud comets.

NASA's Stardust sample return mission will encounter P/Wild 2 98 days postperihelion in January 2004. Based on our observations at a similar point in the orbit and the Halley size distribution, we predict that the mass fluence on the spacecraft for a 150 km miss distance will be about 8×10^{-5} kg/m^2 for particles up to 1 cm in radius. The corresponding areal coverage will be about 10^{-4}.

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